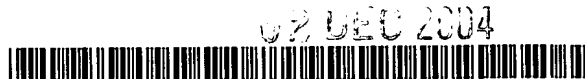


(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
18 December 2003 (18.12.2003)

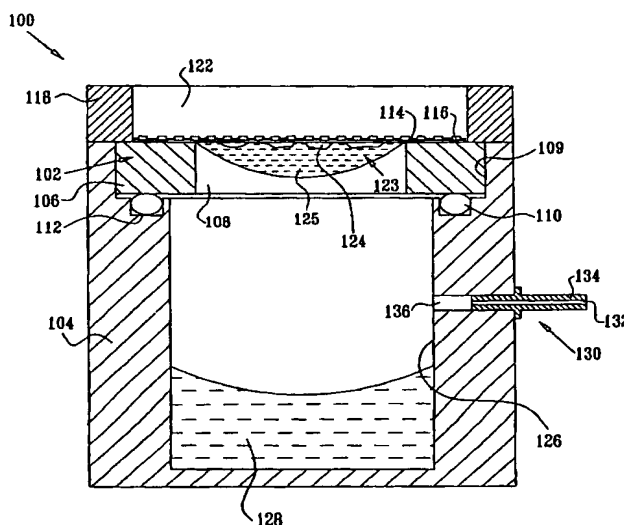
PCT

(10) International Publication Number
WO 2003/104847 A3

- (51) International Patent Classification⁷: **H01J 37/00**, 37/26, 37/252
- (21) International Application Number: PCT/IL2003/000455
- (22) International Filing Date: 1 June 2003 (01.06.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 150056 5 June 2002 (05.06.2002) IL
- (71) Applicant (for all designated States except US): **YEDA RESEARCH AND DEVELOPMENT CO. LTD.** [IL/IL]; At the Weizmann Institute of Science, P.O. Box 95, 76100 Rehovot (IL).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **MOSES, Elisha** [IL/IL]; 19 Neve Matz, Weizmann Institute of Science, 76100 Rehovot (IL). **THIBERGE, Stephan** [FR/FR]; 42, Residence Elysee, F-LL 78170 La Celle St. Cloud (FR).
- (74) Agents: **SANFORD T. COLB & CO.** et al.; P.O. Box 2273, 76122 Rehovot (IL).
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:
— with international search report
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- (88) Date of publication of the international search report: 15 April 2004

[Continued on next page]

(54) Title: **LOW-PRESSURE CHAMBER FOR SCANNING ELECTRON MICROSCOPY IN A WET ENVIRONMENT**



(57) Abstract: A specimen enclosure assembly (100) for use in an electron microscope and including a rigid specimen enclosure dish (102) having an aperture (122) and defining an enclosed specimen placement volume (125), an electron beam permeable, fluid impermeable, cover (114) sealing the specimen placement volume (125) at the aperture (122) from a volume outside the enclosure and a pressure controller communicating with the enclosed specimen placement volume (125) and being operative to maintain the enclosed specimen placement volume (125) at a pressure, which exceeds a vapor pressure of a liquid sample (123) in the specimen placement volume (125) and is greater than a pressure of a volume outside the enclosure, whereby a pressure differential across the cover (114) does not exceed a threshold level at which rupture of the cover (114) would occur.

WO 2003/104847 A3



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/IL03/00455

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H01J 37/00, 37/26, 37/252

US CL : 250/310, 311, 306, 440.11, 441.11

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 250/310, 311, 306, 440.11, 441.11

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6,130,434 A (MITCHELL et al) 10 October 2000 (10.10.2000), column 5, lines 13-29; claim 1.	1-20
A	US 4,705,949 A (GRIMES, II et al) 10 November 1987 (10.11.1987), Abstract; column 3, line 49 - column 4, line 14.	1-20

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family

Date of the actual completion of the international search

21 August 2003 (21.08.2003)

Date of mailing of the international search report

11 MAR 2004

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Authorized officer

NIKITA WELLS

Telephone No. (703) 308-0956

Penelope Wells

INTERNATIONAL SEARCH REPORT

PCT/IL03/00458

Continuation of B. FIELDS SEARCHED Item 3:

EAST: BRS and IS&R

search terms: (electron adj microscope) and specimen and (electron adj beam); ((electron adj microscope) and specimen and (electron adj beam)) and (liquid adj sample)